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CLAIMS

1. A system for monitoring and processing signal parameters acquired from a patient in multiple operational modes and housed as a portable monitoring unit, comprising:

- 5 a data acquisition processor for receiving and processing patient parameter data from a plurality of different patient attached sensors to provide processed patient parameter data;
- an image reproduction device for displaying processed patient parameter data;
- 10 a communication interface for communicating said processed patient parameter data to:
- said image reproduction device for display in a first mode;
- a docking station when said portable monitoring unit is docked in said docking station in a second mode; and
- 15 a network access point coupled to a communication network via wireless communication in a third mode; and
- a power unit for re-charging a battery in said portable monitoring unit in said second mode.

2. A system according to claim 1 wherein:

- 20 said communication interface communicates said processed patient parameter data to:
- said image reproduction device for display in said first mode;
- said docking station when said portable monitoring unit is docked in said docking station in said second mode; and
- 25 said network access point coupled to said communication network via wireless communication in said third mode;
- without requiring physical removal of said plurality of patient attached sensors.

3. A system according to claim 2 wherein:
 - 5 said plurality of patient attached sensors are connected to said data acquisition processor through a cable; and
 - 10 said communication interface communicates said processed patient parameter data to:
 - 15 said image reproduction device for display in said first mode;
 - 20 said docking station when said portable monitoring unit is docked in said docking station in said second mode; and
 - 25 said network access point coupled to said communication network via wireless communication in said third mode;
 - 30 without requiring physical disconnection of the cable from the data acquisition processor.
4. A system according to claim 3 wherein:
 - 5 the cable is connected to the data acquisition processor through a connector; and
 - 10 said communication interface communicates said processed patient parameter data to:
 - 15 said image reproduction device for display in said first mode;
 - 20 said docking station when said portable monitoring unit is docked in said docking station in said second mode; and
 - 25 said network access point coupled to said communication network via wireless communication in said third mode;
 - 30 without requiring physical disconnection of the connector from the data acquisition processor.
- 25 5. A system according to claim 1 wherein said portable monitoring unit is removable from said docking station in said second mode without disconnection of a connector.

6. A system according to claim 1 wherein said portable monitoring unit is removable from said docking station in said second mode without disconnection of a cable.

7. A system according to claim 1 wherein said portable monitoring unit
5 in said third mode supports at least one of, (a) wear by a patient to support monitoring of patient parameters during patient movement and (b) portable use by a healthcare worker to check parameters of multiple patients at different locations.

8. A system according to claim 1 wherein said first and third modes
operate concurrently to communicate said processed patient parameter data to
10 said image reproduction device for display and to said network access point
coupled to said communication network.

9. A system according to claim 6 wherein said image reproduction device is powered down after a predetermined time interval to conserve power in response to a preprogrammed instruction.

15 10. A system according to claim 1 wherein in a fourth mode, said communication interface communicates said processed patient parameter data to at least one of, (a) a processor for conditioning said processed patient parameter data for display on a second reproduction device of greater image resolution than said image reproduction device and (b) a processor for conditioning said
20 processed patient parameter data for display on a mobile tablet style reproduction device.

11. A system according to claim 8 wherein said communication interface communicates said processed patient parameter data in said fourth mode by at least one of, (i) wireless and (ii) wired, communication.

12. A system according to claim 1 wherein said processed patient parameter data comprises physiological data including at least one of, (a) electrocardiograph (ECG) data, (b) blood parameter data, (c) ventilation parameter data, (d) infusion pump related data, (e) invasive or non-invasive blood pressure data, (f) pulse rate data, (g) temperature data and (h) respiratory data.

13. A system according to claim 1 wherein said first, second and third modes support patient monitoring in a plurality of clinical situations including two or more of, (a) an emergency room, (b) an intensive care unit, (c) a pre-operative, intra-operative and post operative environment, (d) ambulatory patient monitoring 10 using wireless telemetry of patient parameter data, (e) hospital ward monitoring and (f) outside the hospital.

14. A system according to claim 1 including an interface port for receiving a compact flash device including at least one of, (a) memory and (b) a card supporting WAN (Wide Area Network) or LAN (Local Area Network) access.

15 15. A system according to claim 1 wherein said communication interface incorporates a Bluetooth 802.15 compatible wireless transceiver.

16. A system according to claim 1 wherein said communication interface supports network or local communication using wireless technologies including at least one of, (a) WLAN 802.11b standard compatible communication, (b) 802.11a 20 standard compatible communication, (c) 802.11g standard compatible communication, (d) Bluetooth 802.15 standard compatible communication, and (e) GSM/GPRS standard compatible communication.

17. A system according to claim 1 wherein said communication interface automatically switches between wired and wireless operation to maintain

continuous communication with at least one of, (a) local point-of-care device, (b) a communication network and (c) a central monitoring station, in response to detection of an operational communication link during a communication link search operation.

5 18. A system according to claim 1 wherein said portable monitoring unit is assigned to a single particular patient for the duration of the length of stay of said patient in a hospital in multiple hospital care areas.

10 19. A system according to claim 1 wherein said communication interface communicates with a wireless location detection system and supports patient location tracking.

20. 20. A system according to claim 1 wherein said portable monitoring unit is assignable on-demand to a specific patient to enable a spot-check of vital signs of said patient.

15 21. A system for monitoring and processing signal parameters acquired from a patient in multiple operational modes and housed as a portable monitoring unit, comprising:

20 a data acquisition processor for receiving and processing patient parameter data from a plurality of different patient attached sensors to provide processed patient parameter data;

25 a communication interface for communicating said processed patient parameter data to:

 a first docking station when said portable monitoring unit is docked in said first docking station in a first mode;

 a network access point coupled to a communication network via wireless communication in a second mode; and

a second docking station when said portable monitoring unit is docked in said second docking station in said first mode; without requiring physical removal of said plurality of patient attached sensors.

22. A system according to claim 19 wherein:

5 said plurality of patient attached sensors are connected to said data acquisition processor through a cable; and
 said communication interface communicates said processed patient parameter data to:

10 a first docking station when said portable monitoring unit is docked in said first docking station in a first mode;
 a network access point coupled to a communication network via wireless communication in a second mode; and
 a second docking station when said portable monitoring unit is docked in said second docking station in said first mode;

15 without requiring physical disconnection of the cable from the data acquisition processor.

23. A system according to claim 20 wherein:

the cable is connected to the data acquisition processor through a connector; and

20 said communication interface communicates said processed patient parameter data to:
 a first docking station when said portable monitoring unit is docked in said first docking station in a first mode;
 a network access point coupled to a communication network via wireless communication in a second mode; and
 a second docking station when said portable monitoring unit is docked in said second docking station in said first mode;

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without requiring physical disconnection of the connector from the data acquisition processor.

24. A system for monitoring and processing signal parameters acquired from a patient in multiple operational modes and housed as a portable monitoring unit, comprising:

a data acquisition processor for receiving and processing patient parameter data from a plurality of different patient attached sensors to provide processed patient parameter data;

10 data;

a communication interface for communicating said processed patient parameter data to:

said image reproduction device for display in a first mode;

15 a docking station when said portable monitoring unit is docked in said docking station in a second mode, said portable monitoring unit being removable from said docking station in said second mode without disconnection of a connector; and

a network access point coupled to a communication network via wireless communication in a third mode; and

20 a power unit for re-charging a battery in said portable monitoring unit in said second mode.

25. A system for monitoring and processing signal parameters acquired from a patient in multiple operational modes and housed as a portable monitoring unit, comprising:

a data acquisition processor for receiving and processing patient parameter data from a plurality of patient attached sensors to provide processed patient parameter data;

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an image reproduction device for displaying processed patient parameter data;

a communication interface for communicating said processed patient parameter data to said image reproduction device for display and for concurrently
5 communicating said processed patient parameter data to:

a docking station when said portable monitoring unit is docked in said docking station in a first mode; and

a network access point coupled to a communication network via wireless communication in a second mode; and

10 a power unit for re-charging a battery in said portable monitoring unit in said first mode.

26. A system according to claim 22 wherein in a third mode, said communication interface communicates said processed patient parameter data to at least one of, (a) a processor for conditioning said processed patient parameter data for display on a display device of greater image resolution than said image reproduction device and (b) a processor for conditioning said processed patient parameter data for display on a mobile tablet style reproduction device.

27. A method for monitoring and processing signal parameters acquired from a patient in multiple operational modes and housed as a portable monitoring unit, comprising the steps of:

receiving and processing patient parameter data from a plurality of patient attached sensors to provide processed patient parameter data;

communicating said processed patient parameter data to:

an image reproduction device for display in a first mode;

25 a docking station when said portable monitoring unit is docked in said docking station in a second mode; and

a network access point coupled to a communication network via wireless communication in a third mode;

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initiating display of said processed patient parameter data; and
re-charging a battery in said portable monitoring unit in said second mode.